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IMPACT OF MYOCARDIAL VIABILITY ON ECHOCARDIOGRAPHIC PARAMETERS OF CARDIAC STRUCTURE AND FUNCTION IN PATIENTS WITH ISCHEMIC CARDIOMYOPATHY. A REPORT FROM THE STICH TRIAL

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Background: In patients with ischemic cardiomyopathy (IC), viable myocardium (VM) may be a determinant of prognosis and recovery of left ventricular (LV) function with revascularization, and hence influence therapeutic decisions. However, whether cardiac structure and hemodynamics are related to the presence or absence of VM is unknown. The present study aimed to address - in the context of a large randomized clinical trial - the hypothesis that echocardiographic parameters of cardiac structure and hemodynamics in patients with IC are related to VM.

Methods: A total of 774 patients (110 women, age 61±9 years) with coronary artery disease and LV ejection fraction (EF) ≤35% enrolled in the Surgical Treatment of IsChemic Heart failure (STICH) trial were included in this study. STICH is an ongoing multicenter randomized trial designed to establish the role of surgical revascularization in the treatment of IC. Patients in this study had an echocardiogram at baseline and a viability study with either SPECT or dobutamine echo. A subset of 144 patients underwent both viability tests and, based on this analysis, each individual patient was assessed as having VM if either ≥11 segments by SPECT or ≥ 5 segments by dobutamine echo were considered viable.

Results: Compared to patients without VM, those with VM (n=602, 78%) had higher EF (29±8 vs 26±8 %, p<0.001) and smaller LV volumes (end diastolic 222±62 vs 254±77 ml, p<0.001; end systolic 161±55 vs 192±70 ml, p<0.001). Wall motion score index was lower (i.e., better wall motion) in patients with VM for the entire LV and for the anterior and apical segments (all p<0.001). Left atrial size was smaller (area 23±6 vs 28±9 cm2, p=0.048) in patients with VM, although parameters of diastolic function were not different between the two groups. Patients with VM had reduced prevalence of severe right ventricular dysfunction (p=0.038) and moderate or severe mitral regurgitation (p=0.014). Doppler-estimated pulmonary artery systolic pressure was lower among patients with VM (41±16 vs 50±16 mmHg; p=0.001).

Conclusions: In patients with IC enrolled in a large randomized clinical trial, the presence of VM is associated with less severe impairment in cardiac structure and hemodynamics.